

REMARKS

Claims 1, 4, 8-11, 22, 23, 25-28, 31-50, 52-56, 62 and 68-70 have been examined, and have been rejected under 35 U.S.C. § 103(a). Also, the Examiner has indicated that claims 33-35 contain allowable subject matter.

I. Preliminary Matters

The Examiner has requested that the Applicant check the specification for any errors. At this time, Applicant does not have any further amendments to the specification. Accordingly, Applicant respectfully requests the Examiner to approve the drawings.

Also, Applicant has not received the initialed PTO 1449 form for the Information Disclosure Statement filed on September 29, 2003. Accordingly, Applicant respectfully requests the Examiner to return the initialed form with the next Office Action. Since the USPTO PAIR system shows that the September 29, 2003 Information Disclosure Statement is part of the electronic file, Applicant is not submitting an extra copy of the PTO-1449 form at this time.

II. Rejection under 35 U.S.C. § 103(a) over JP 10305590 to Kurihara et al. (“Kurihara”) in view of U.S. Patent No. 6,044,694 to Anderson et al. (“Anderson”).

Claims 1, 4, 8-9, 46-48 and 56 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara in view of Anderson.

A. Claim 1

Applicant submits that claims 1, 46 and 56 are patentable over the cited references. For example, the claims recite that the piezoelectric device outputs a signal indicating a residual

oscillating state of a vibration part under free oscillation. Further, the vibration part contacts with ink in an ink container via a cavity, where the cavity defines an area of the vibration part.

In view of the above features, an ink level in an ink container can be detected precisely. Since the area of the vibration part is defined by the cavity, a piezoelectric element can be made small to reduce cost during manufacturing, and a signal indicating a residual oscillating state of the vibration part of the piezoelectric device can be detected precisely even where a signal produced by the residual oscillation is generally weak and is susceptible to noise (i.e., the noises can be suppressed by defining the vibrating area by the cavity).

The Examiner acknowledges that Kurihara does not disclose the residual oscillating state of a vibration part under free oscillation, but contends that Anderson does. In particular, the Examiner refers to column 2, lines 6-40 of Anderson as disclosing the claimed feature. Column 2 of Anderson discloses free oscillation using piezoelectric benders. An example of such a piezoelectric bender is shown in Figure 1. As further shown in Figure 2, the piezoelectric plates 10, 12 of each bender are elongated and extend into the mixing vessels through the side of each mixing vessel. Based on the shape of the benders, there is no need for a cavity. Accordingly, both the structure and the manner in which the benders of Anderson function are entirely different from the teachings of Kurihara. Thus, Applicant submits that one skilled in the art would not be motivated to modify Kurihara in a manner as recited by the Examiner.

Further, as stated above, claim 1 recites that the cavity defines the area of the vibration part.

Since the shape of the benders of Anderson preclude the use of a cavity, Applicant submits that Anderson likewise fails to disclose the above feature. In addition, Kurihara is completely silent as to whether an opening 5 in Figures 1 and 8 defines an area of a vibration part.

In view of the above, Applicant submits that claims 1, 46 and 56 are patentable over the cited references.

B. Claims 4, 8, 9, 47 and 48

Since claims 4, 8, 9, 47 and 48 are dependent upon either claim 1 or claim 46, Applicant submits that such claims are patentable at least by virtue of their dependency.

III. Rejection under 35 U.S.C. § 103(a) over Kurihara, Anderson and U.S. Patent No. 6,416,152 to Matsuzaki et al (“Matsuzaki”)

The Examiner has rejected claim 10 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Matsuzaki. However, Matsuzaki and the claimed invention have a common assignee. Applicant submits that the subject matter of Matsuzaki and the claimed invention were subject to a common obligation of assignment pursuant to MPEP 706.02(l)(2). This demonstration of common obligation of assignment removes Matsuzaki as a reference, which in turn, overcomes the 35 U.S.C. §103 rejection of claim 10.

Applicant asserted the above in the February 21, 2003 Amendment.

In view of the above, Applicant submits that the rejection of claim 10 is now moot.

Nevertheless, Applicant submits that claim 10 is patentable at least by virtue of its dependency.

IV. Rejections under 35 U.S.C. § 103(a) in view of Kurihara, Anderson and U.S. Patent No. 6,347,853 to Kato (“Kato”)

The Examiner has rejected claims 11 and 52 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Kato. However, since claims 11 and 52 are dependent upon claims 1 and 46, respectively, and Kato fails to cure the deficient teachings of Kurihara and Anderson, in regard to claims 1 and 46, Applicant submits that claims 11 and 52 are patentable at least by virtue of their dependency.

V. Rejection under 35 U.S.C. § 103(a) over Kurihara, Anderson and U.S. Patent No. 5,694,156 to Hoisington et al. (“Hoisington”)

The Examiner has rejected claims 22, 23, 25-28 and 31-32 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Hoisington. However, since claims 22, 23, 25-28 and 31-32 are dependent upon claim 1, and Hoisington fails to cure the deficient teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claims 22, 23, 25-28 and 31-32 are patentable at least by virtue of their dependency.

VI. Rejection under 35 U.S.C. § 103(a) over Kurihara, Anderson and U.S. Patent No. 5,132,711 to Shinada et al. (“Shinada”).

The Examiner has rejected claim 36 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Shinada. However, since claim 36 is dependent upon claim 1, and Shinada fails to cure the deficient teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claim 36 is patentable at least by virtue of its dependency.

VII. Rejection under 35 U.S.C. § 103(a) over Kurihara, Anderson, and JP 10-323997 to Fumiyuki (“Fumiyuki”)

The Examiner has rejected claims 37-41 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Fumiyuki. However, since claims 37-41 are dependent upon claim 1, and Fumiyuki fails to cure the deficient teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claims 37-41 are patentable at least by virtue of their dependency.

VIII. Rejections under 35 U.S.C. § 103(a) in view of Kurihara, Anderson, Fumiyuki and Hoisington

The Examiner has rejected claims 42 and 43 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Fumiyuki and Hoisington. However, since claims 42 and 43 are dependent upon claim 1, and Fumiyuki and Hoisington fail to cure the deficient teachings

of Kurihara and Anderson, in regard to claim 1, Applicant submits that claims 42 and 43 are patentable at least by virtue of their dependency.

IX. Rejection under 35 U.S.C. § 103(a) in view of Kurihara, Anderson, Fumiyuki and U.S. Patent No. 5,835,817 to Bullock et al. (“Bullock”)

The Examiner has rejected claim 44 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Fumiyuki and Bullock. However, since claim 44 is dependent upon claim 1, and Fumiyuki and Bullock fail to cure the deficient teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claim 44 is patentable at least by virtue of its dependency.

X. Rejection under 35 U.S.C. § 103(a) in view of Kurihara, Anderson, Fumiyuki, Bullock and Hoisington

The Examiner has rejected claim 45 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Fumiyuki, Bullock and Hoisington. However, since claim 45 is dependent upon claim 1, and Fumiyuki, Bullock and Hoisington fail to cure the deficient teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claim 45 is patentable at least by virtue of their dependency.

XI. Rejections under 35 U.S.C. § 103(a) in view of Kurihara, Anderson and U.S. Patent No. 5,506,611 to Ujita et al. ("Ujita")

The Examiner has rejected claims 49, 50 and 55 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Ujita. However, since claims 49, 50 and 55 are dependent upon claim 46, and Ujita fails to cure the deficient teachings of Kurihara and Anderson, in regard to claim 46, Applicant submits that claims 49, 50 and 55 are patentable at least by virtue of their dependency.

XII. Rejection under 35 U.S.C. § 103(a) over Kurihara, Anderson, Kato and JP 11010909 to Nakano ("Nakano")

The Examiner has rejected claim 53 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Kato and Nakano. However, since claim 53 is dependent upon claim 46, and Kato and Nakano fail to cure the deficient teachings of Kurihara and Anderson, in regard to claim 46, Applicant submits that claim 53 is patentable at least by virtue of its dependency.

XIII. Rejection under 35 U.S.C. §103(a) in view of Kurihara, Anderson, Kato, Nakano and U.S. Patent No. 4,337,470 to Furukawa ("Furukawa")

The Examiner has rejected claims 54 and 62 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Kato, Nakano and Furukawa. However, since claims 54 and 62 are dependent upon claim 46, and Kato, Nakano and Furukawa fail to cure the deficient

teachings of Kurihara and Anderson, in regard to claim 1, Applicant submits that claims 54 and 62 are patentable at least by virtue of their dependency.

XIV. Rejections under 35 U.S.C. § 103(a) in view of Kurihara, Anderson and JP 57-208260 to Ohori et al. (“Ohori”)

The Examiner has rejected claims 68 and 70 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson and Ohori. However, since claims 68 and 70 are dependent upon claim 46 or 56, and Ohori fails to cure the deficient teachings of Kurihara and Anderson, in regard to claims 46 and 56, Applicant submits that claims 68 and 70 are patentable at least by virtue of their dependency.

XV. Rejection under 35 U.S.C. § 103(a) in view of Kurihara, Anderson, Kato, Nakano, Furukawa and Ohori,

The Examiner has rejected claim 69 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kurihara, Anderson, Kato, Nakano, Furukawa and Ohori. However, since claim 69 is dependent upon claim 46, and Kato, Nakano, Furukawa and Ohori fail to cure the deficient teachings of Kurihara and Anderson, in regard to claim 46, Applicant submits that claim 69 is patentable at least by virtue of its dependency.

Amendment under 37 C.F.R. § 1.111
U.S. Application No. 10/031,408

XVI. Allowable Subject Matter

As stated above, the Examiner has indicated that claims 33-35 contain allowable subject matter.

XVII. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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